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=> d his ful

     (FILE 'CAPLUS, WPIX, BIOSIS, MEDLINE' ENTERED AT 09:28:48 ON 25 JAN 2007)
                DEL HIS Y

     FILE 'CAPLUS' ENTERED AT 10:09:46 ON 25 JAN 2007
L1            14 SEA ABB=ON  PLU=ON  BETA IGH3/OBI OR BETA IG H3 BETAIG H3/OBI
                 D SCAN
L2           253 SEA ABB=ON  PLU=ON  (BIGH3 OR BETA IGH3 OR BETA (2W) IG H3
                 )/BI
L3           126 SEA ABB=ON  PLU=ON  BETA INDUC? GENE H3/OBI
L4            17 SEA ABB=ON  PLU=ON  (BETA INDUC? GENE H3)/AB
L5           254 SEA ABB=ON  PLU=ON  (L1 OR L2 OR L3 OR L4)

     FILE 'REGISTRY' ENTERED AT 10:15:33 ON 25 JAN 2007
                E CHITOSAN/CN
L6             1 SEA ABB=ON  PLU=ON  CHITOSAN/CN
                 D RN
                 D

     FILE 'CAPLUS' ENTERED AT 10:16:10 ON 25 JAN 2007
L7         24547 SEA ABB=ON  PLU=ON  L6 OR CHITOSAN/OBI
L8             3 SEA ABB=ON  PLU=ON  L5 AND L7
L9           195 SEA ABB=ON  PLU=ON  (IG H3)/BI
L10            3 SEA ABB=ON  PLU=ON  L9 AND L7
L11            3 SEA ABB=ON  PLU=ON  L10 OR L8
L12        30688 SEA ABB=ON  PLU=ON  TRANSFORMING GROWTH FACTOR#/OBI (L)
                 BETA/OBI
L13          122 SEA ABB=ON  PLU=ON  L12 AND  L7
L14        17775 SEA ABB=ON  PLU=ON  POLYPHOSPHAT?/OBI OR TRIPOLYPHOSPHATE?/OBI
L15            4 SEA ABB=ON  PLU=ON  L14 AND L13
                 D SCAN TI
L16          161 SEA ABB=ON  PLU=ON  (TRANSFORMING GROWTH FACTOR#/OBI  OR
                 TGF/OBI)(L)  H3/OBI
L17            2 SEA ABB=ON  PLU=ON  L16 AND L7
L18            5 SEA ABB=ON  PLU=ON  L17 OR L15 OR L11
                 D  SCAN TI
L19         2444 SEA ABB=ON  PLU=ON  CHO B?/AU
L20         6950 SEA ABB=ON  PLU=ON  KIM I?/AU
L21         9373 SEA ABB=ON  PLU=ON  L19 OR L20
L22           72 SEA ABB=ON  PLU=ON  L21 AND L7
L23            2 SEA ABB=ON  PLU=ON  L22 AND L14
                 D SCAN
L24            3 SEA ABB=ON  PLU=ON  L22 AND (L5 OR L12 OR L16)
L25            3 SEA ABB=ON  PLU=ON  L24 OR L23
L26            0 SEA ABB=ON  PLU=ON  L25 NOT L18
                 D SCAN TI L25

     FILE 'WPIX, BIOSIS, MEDLINE' ENTERED AT 10:22:57 ON 25 JAN 2007
L27        18811 SEA ABB=ON  PLU=ON  L6 OR CHITOSAN
L28          420 SEA ABB=ON  PLU=ON  L5
L29            6 SEA ABB=ON  PLU=ON  L27 AND L28
                 D SCAN TI
L30          403 SEA ABB=ON  PLU=ON  BETAIG(W) H3
L31            3 SEA ABB=ON  PLU=ON  L30 AND L27
L32            6 SEA ABB=ON  PLU=ON  L31 OR L29
L33        11073 SEA ABB=ON  PLU=ON  KIM I?/AU
L34         3834 SEA ABB=ON  PLU=ON  CHO B?/AU
L35        14801 SEA ABB=ON  PLU=ON  (L33 OR L34)
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L36          77 SEA ABB=ON  PLU=ON  L35 AND L27
L37           6 SEA ABB=ON  PLU=ON  L36 AND (L28 OR L30)
L38           0 SEA ABB=ON  PLU=ON  L37 NOT L32

     FILE 'EMBASE' ENTERED AT 10:27:18 ON 25 JAN 2007
L39         202 SEA ABB=ON  PLU=ON  L5 OR L30
L40        4398 SEA ABB=ON  PLU=ON  L6 OR CHITOSAN
L41           1 SEA ABB=ON  PLU=ON  L39 AND L40
L42       32507 SEA ABB=ON  PLU=ON  TRANSFORMING GROWTH FACTOR# (2A) BETA
L43          37 SEA ABB=ON  PLU=ON  L42 AND L40
L44        3472 SEA ABB=ON  PLU=ON  ?POLYPHOSPHATE?
L45           1 SEA ABB=ON  PLU=ON  L44 AND L43
L46           2 SEA ABB=ON  PLU=ON  L41 OR L45
L47        1824 SEA ABB=ON  PLU=ON  KIM I?/AU
L48         759 SEA ABB=ON  PLU=ON  CHO B?/AU
L49        2557 SEA ABB=ON  PLU=ON  (L47 OR L48)
L50          18 SEA ABB=ON  PLU=ON  L49 AND L40
L51           1 SEA ABB=ON  PLU=ON  L50 AND (L39 OR L42)
L52           0 SEA ABB=ON  PLU=ON  L51 NOT (L41 OR L46)
L53           2 SEA ABB=ON  PLU=ON  L41 OR L46

     FILE 'WPIX, BIOSIS, MEDLINE' ENTERED AT 10:32:02 ON 25 JAN 2007
L54       75622 SEA ABB=ON  PLU=ON  TRANSFORMING GROWTH FACTOR# (2A) BETA
L55         102 SEA ABB=ON  PLU=ON  L54 AND L27
L56       19590 SEA ABB=ON  PLU=ON  L44
L57           2 SEA ABB=ON  PLU=ON  L55 AND L56
L58           7 SEA ABB=ON  PLU=ON  L57 OR L37

     FILE 'CAPLUS, WPIX, MEDLINE, EMBASE' ENTERED AT 10:33:47 ON 25 JAN 2007
L59           6 DUP REM L18 L57 L53 (3 DUPLICATES REMOVED)
                    ANSWERS '1-5' FROM FILE CAPLUS
                    ANSWER '6' FROM FILE EMBASE
               D QUE L38
```

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=> fil reg
FILE 'REGISTRY' ENTERED AT 10:36:12 ON 25 JAN 2007
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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Property values tagged with IC are from the ZIC/VINITI data file
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STRUCTURE FILE UPDATES:   24 JAN 2007  HIGHEST RN 918400-64-3
DICTIONARY FILE UPDATES:  24 JAN 2007  HIGHEST RN 918400-64-3

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document.  For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

=> d que l6 ; d l6
L6             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITOSAN/CN



L6   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2007 ACS on STN
RN   9012-76-4  REGISTRY
ED   Entered STN:  16 Nov 1984
CN   Chitosan (8CI, 9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   100D-VL
CN   Amidan
CN   BC 10
CN   BC 10 (polysaccharide)
CN   Biopolymer L 112
CN   C 60M
CN   Chicol
CN   Chirosan 100
CN   Chitan, N-acetyl-
CN   Chitech
CN   Chitin D
CN   Chitin, N-deacetyl-
CN   Chitoclear
CN   Chitoclear 400
CN   ChitoClear FG 95
CN   Chitoclear TM 1111
CN   Chitoclear TM 1220
CN   Chitoclear TM 588
CN   Chitoclear TM 656
CN   Chitofos
CN   Chitolaze
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CN   Chitopearl 3510
CN   Chitopearl AL 10
CN   Chitopearl BC 3000
CN   Chitopearl BCW 2500
CN   Chitopearl BCW 3000
CN   Chitopearl BCW 3500
CN   Chitopearl BCW 3505
CN   Chitopearl BCW 3507
CN   Chitopearl K 20
CN   Chitosan 10B
CN   Chitosan 500
CN   Chitosan CLH
CN   Chitosan EL
CN   Chitosan F
CN   Chitosan FL
CN   Chitosan H
CN   Chitosan LL
CN   Chitosan LL 80
CN   Chitosan LLWP
CN   Chitosan M
CN   Chitosan MP
CN   Chitosan PSH
CN   Chitosan VL
CN   Chitosan WL-M
CN   Chitosano 90%
CN   Chitosol
CN   Chitosom
CN   Crystan LA-S
CN   CTA 1 Lactic Acid
ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for
     DISPLAY
DR   57285-05-9, 191045-06-4
MF   Unspecified
CI   PMS, COM, MAN
PCT  Manual registration, Polyother, Polyother only
LC   STN Files:   ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOSIS, BIOTECHNO, CA,
       CABA, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMLIST, CIN, CSCHEM, CSNB,
       DDFU, DRUGU, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IMSDRUGNEWS,
       IMSRESEARCH, IPA, MEDLINE, NAPRALERT, PHAR, PIRA, PROMT, RTECS*,
       SCISEARCH, TOXCENTER, TULSA, USAN, USPAT2, USPATFULL, VTB
         (*File contains numerically searchable property data)
     Other Sources:   NDSL**, TSCA**, WHO
         (**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

          21184 REFERENCES IN FILE CA (1907 TO DATE)
           3391 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
          21351 REFERENCES IN FILE CAPLUS (1907 TO DATE)


=> fil caplus wpiz biosis medline embase
'WPIZ' IS NOT A VALID FILE NAME
ENTER A FILE NAME OR (IGNORE):end

=> fil caplus wpix biosis medline embase
FILE 'CAPLUS' ENTERED AT 10:36:54 ON 25 JAN 2007
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FILE 'BIOSIS' ENTERED AT 10:36:54 ON 25 JAN 2007
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FILE 'MEDLINE' ENTERED AT 10:36:54 ON 25 JAN 2007

FILE 'EMBASE' ENTERED AT 10:36:54 ON 25 JAN 2007
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=> d que l59
L1            14 SEA FILE=CAPLUS ABB=ON  PLU=ON  BETA IGH3/OBI OR BETA IG H3
                 BETAIG H3/OBI
L2           253 SEA FILE=CAPLUS ABB=ON  PLU=ON  (BIGH3 OR BETA IGH3 OR BETA
                 (2W) IG H3 )/BI
L3           126 SEA FILE=CAPLUS ABB=ON  PLU=ON  BETA INDUC? GENE H3/OBI
L4            17 SEA FILE=CAPLUS ABB=ON  PLU=ON  (BETA INDUC? GENE H3)/AB
L5           254 SEA FILE=CAPLUS ABB=ON  PLU=ON  (L1 OR L2 OR L3 OR L4)
L6             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITOSAN/CN
L7         24547 SEA FILE=CAPLUS ABB=ON  PLU=ON  L6 OR CHITOSAN/OBI
L8             3 SEA FILE=CAPLUS ABB=ON  PLU=ON  L5 AND L7
L9           195 SEA FILE=CAPLUS ABB=ON  PLU=ON  (IG H3)/BI
L10            3 SEA FILE=CAPLUS ABB=ON  PLU=ON  L9 AND L7
L11            3 SEA FILE=CAPLUS ABB=ON  PLU=ON  L10 OR L8
L12        30688 SEA FILE=CAPLUS ABB=ON  PLU=ON  TRANSFORMING GROWTH FACTOR#/OBI
                  (L) BETA/OBI
L13          122 SEA FILE=CAPLUS ABB=ON  PLU=ON  L12 AND  L7
L14        17775 SEA FILE=CAPLUS ABB=ON  PLU=ON  POLYPHOSPHAT?/OBI OR TRIPOLYPHO
                 SPHATE?/OBI
L15            4 SEA FILE=CAPLUS ABB=ON  PLU=ON  L14 AND L13
L16          161 SEA FILE=CAPLUS ABB=ON  PLU=ON  (TRANSFORMING GROWTH FACTOR#/OB
                 I  OR TGF/OBI)(L)  H3/OBI
L17            2 SEA FILE=CAPLUS ABB=ON  PLU=ON  L16 AND L7
L18            5 SEA FILE=CAPLUS ABB=ON  PLU=ON  L17 OR L15 OR L11
L27        18811 SEA L6 OR CHITOSAN
L30          403 SEA BETAIG(W) H3
L39          202 SEA FILE=EMBASE ABB=ON  PLU=ON  L5 OR L30
L40         4398 SEA FILE=EMBASE ABB=ON  PLU=ON  L6 OR CHITOSAN
L41            1 SEA FILE=EMBASE ABB=ON  PLU=ON  L39 AND L40
L42        32507 SEA FILE=EMBASE ABB=ON  PLU=ON  TRANSFORMING GROWTH FACTOR#
                 (2A) BETA
L43           37 SEA FILE=EMBASE ABB=ON  PLU=ON  L42 AND L40
L44         3472 SEA FILE=EMBASE ABB=ON  PLU=ON  ?POLYPHOSPHATE?
L45            1 SEA FILE=EMBASE ABB=ON  PLU=ON  L44 AND L43
L46            2 SEA FILE=EMBASE ABB=ON  PLU=ON  L41 OR L45
L53            2 SEA FILE=EMBASE ABB=ON  PLU=ON  L41 OR L46
L54        75622 SEA TRANSFORMING GROWTH FACTOR# (2A) BETA
L55          102 SEA L54 AND L27
L56        19590 SEA L44
L57            2 SEA L55 AND L56
L59            6 DUP REM L18 L57 L53 (3 DUPLICATES REMOVED)


=> d que l26; d que l38
L1            14 SEA FILE=CAPLUS ABB=ON  PLU=ON  BETA IGH3/OBI OR BETA IG H3
                 BETAIG H3/OBI
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L2          253 SEA FILE=CAPLUS ABB=ON  PLU=ON  (BIGH3 OR BETA IGH3 OR BETA
                (2W) IG H3 )/BI
L3          126 SEA FILE=CAPLUS ABB=ON  PLU=ON  BETA INDUC? GENE H3/OBI
L4           17 SEA FILE=CAPLUS ABB=ON  PLU=ON  (BETA INDUC? GENE H3)/AB
L5          254 SEA FILE=CAPLUS ABB=ON  PLU=ON  (L1 OR L2 OR L3 OR L4)
L6            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITOSAN/CN
L7        24547 SEA FILE=CAPLUS ABB=ON  PLU=ON  L6 OR CHITOSAN/OBI
L8            3 SEA FILE=CAPLUS ABB=ON  PLU=ON  L5 AND L7
L9          195 SEA FILE=CAPLUS ABB=ON  PLU=ON  (IG H3)/BI
L10           3 SEA FILE=CAPLUS ABB=ON  PLU=ON  L9 AND L7
L11           3 SEA FILE=CAPLUS ABB=ON  PLU=ON  L10 OR L8
L12       30688 SEA FILE=CAPLUS ABB=ON  PLU=ON  TRANSFORMING GROWTH FACTOR#/OBI
                (L) BETA/OBI
L13         122 SEA FILE=CAPLUS ABB=ON  PLU=ON  L12 AND  L7
L14       17775 SEA FILE=CAPLUS ABB=ON  PLU=ON  POLYPHOSPHAT?/OBI OR TRIPOLYPHO
                SPHATE?/OBI
L15           4 SEA FILE=CAPLUS ABB=ON  PLU=ON  L14 AND L13
L16         161 SEA FILE=CAPLUS ABB=ON  PLU=ON  (TRANSFORMING GROWTH FACTOR#/OB
                I  OR TGF/OBI)(L)  H3/OBI
L17           2 SEA FILE=CAPLUS ABB=ON  PLU=ON  L16 AND L7
L18           5 SEA FILE=CAPLUS ABB=ON  PLU=ON  L17 OR L15 OR L11
L19        2444 SEA FILE=CAPLUS ABB=ON  PLU=ON  CHO B?/AU
L20        6950 SEA FILE=CAPLUS ABB=ON  PLU=ON  KIM I?/AU
L21        9373 SEA FILE=CAPLUS ABB=ON  PLU=ON  L19 OR L20
L22          72 SEA FILE=CAPLUS ABB=ON  PLU=ON  L21 AND L7
L23           2 SEA FILE=CAPLUS ABB=ON  PLU=ON  L22 AND L14
L24           3 SEA FILE=CAPLUS ABB=ON  PLU=ON  L22 AND (L5 OR L12 OR L16)
L25           3 SEA FILE=CAPLUS ABB=ON  PLU=ON  L24 OR L23
L26           0 SEA FILE=CAPLUS ABB=ON  PLU=ON  L25 NOT L18



L1           14 SEA FILE=CAPLUS ABB=ON  PLU=ON  BETA IGH3/OBI OR BETA IG H3
                BETAIG H3/OBI
L2          253 SEA FILE=CAPLUS ABB=ON  PLU=ON  (BIGH3 OR BETA IGH3 OR BETA
                (2W) IG H3 )/BI
L3          126 SEA FILE=CAPLUS ABB=ON  PLU=ON  BETA INDUC? GENE H3/OBI
L4           17 SEA FILE=CAPLUS ABB=ON  PLU=ON  (BETA INDUC? GENE H3)/AB
L5          254 SEA FILE=CAPLUS ABB=ON  PLU=ON  (L1 OR L2 OR L3 OR L4)
L6            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITOSAN/CN
L27       18811 SEA L6 OR CHITOSAN
L28         420 SEA L5
L29           6 SEA L27 AND L28
L30         403 SEA BETAIG(W) H3
L31           3 SEA L30 AND L27
L32           6 SEA L31 OR L29
L33       11073 SEA KIM I?/AU
L34        3834 SEA CHO B?/AU
L35       14801 SEA (L33 OR L34)
L36          77 SEA L35 AND L27
L37           6 SEA L36 AND (L28 OR L30)
L38           0 SEA L37 NOT L32


=> d que 152
L1           14 SEA FILE=CAPLUS ABB=ON  PLU=ON  BETA IGH3/OBI OR BETA IG H3
                BETAIG H3/OBI
L2          253 SEA FILE=CAPLUS ABB=ON  PLU=ON  (BIGH3 OR BETA IGH3 OR BETA
                (2W) IG H3 )/BI
L3          126 SEA FILE=CAPLUS ABB=ON  PLU=ON  BETA INDUC? GENE H3/OBI
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L4          17 SEA FILE=CAPLUS ABB=ON  PLU=ON  (BETA INDUC? GENE H3)/AB
L5         254 SEA FILE=CAPLUS ABB=ON  PLU=ON  (L1 OR L2 OR L3 OR L4)
L6           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITOSAN/CN
L30        403 SEA BETAIG(W) H3
L39        202 SEA FILE=EMBASE ABB=ON  PLU=ON  L5 OR L30
L40       4398 SEA FILE=EMBASE ABB=ON  PLU=ON  L6 OR CHITOSAN
L41          1 SEA FILE=EMBASE ABB=ON  PLU=ON  L39 AND L40
L42      32507 SEA FILE=EMBASE ABB=ON  PLU=ON  TRANSFORMING GROWTH FACTOR#
               (2A) BETA
L43         37 SEA FILE=EMBASE ABB=ON  PLU=ON  L42 AND L40
L44       3472 SEA FILE=EMBASE ABB=ON  PLU=ON  ?POLYPHOSPHATE?
L45          1 SEA FILE=EMBASE ABB=ON  PLU=ON  L44 AND L43
L46          2 SEA FILE=EMBASE ABB=ON  PLU=ON  L41 OR L45
L47       1824 SEA FILE=EMBASE ABB=ON  PLU=ON  KIM I?/AU
L48        759 SEA FILE=EMBASE ABB=ON  PLU=ON  CHO B?/AU
L49       2557 SEA FILE=EMBASE ABB=ON  PLU=ON  (L47 OR L48)
L50         18 SEA FILE=EMBASE ABB=ON  PLU=ON  L49 AND L40
L51          1 SEA FILE=EMBASE ABB=ON  PLU=ON  L50 AND (L39 OR L42)
L52          0 SEA FILE=EMBASE ABB=ON  PLU=ON  L51 NOT (L41 OR L46)


=> d ibib ab ct 159 1-6

L59  ANSWER 1 OF 6  CAPLUS  COPYRIGHT 2007 ACS on STN  DUPLICATE 1
ACCESSION NUMBER:         2004:291968  CAPLUS  Full-text
DOCUMENT NUMBER:          140:309408
TITLE:                    Chitosan-tripolyphosphate
                          composition for stimulating bone formation and bone
                          consolidation
INVENTOR(S):              Kim, In-san; Cho, Byung Chae
PATENT ASSIGNEE(S):       Regen Biotech, Inc., S. Korea
SOURCE:                   PCT Int. Appl., 55 pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.            KIND   DATE        APPLICATION NO.          DATE
     ---------------       ----   --------    --------------------     --------
     WO 2004028578          A1    20040408    WO 2002-KR1837           20020930
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS,
             LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL,
             PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA,
             UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
             KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
             FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF,
             CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
     CA 2500220             A1    20040408    CA 2002-2500220          20020930
     AU 2002330762          A1    20040419    AU 2002-330762           20020930
     JP 2006503614          T     20060202    JP 2004-539598           20020930
     US 2006018973          A1    20060126    US 2005-528750           20050322
PRIORITY APPLN. INFO.:                        WO 2002-KR1837       W   20020930
AB   The present invention relates to a composition for stimulating bone formation
     and bone consolidation, more particularly, to a composition for stimulating
     bone-formation and bone-consolidation by adding a material for stimulating
     bone-forming and bone consolidation to the mixture of tripolyphosphate and
```

water-soluble chitosan. The composition of the present invention can stimulate bone formation and bone consolidation in early stages. Compns. also contain β **Ig-h3** and BMP-4 which improved bone formation and consolidation.

CT Bone formation
CT Bone morphogenetic protein 4
CT Growth factors, animal
CT Platelet-derived growth factors
CT **Polyphosphates**
CT **Transforming growth factors**
CT Cell adhesion molecules

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L59 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2003:640835 CAPLUS Full-text
DOCUMENT NUMBER: 140:223144
TITLE: Porous **chitosan** scaffold containing microspheres loaded with **transforming growth factor**-β1: Implications for cartilage tissue engineering
AUTHOR(S): Kim, Sung Eun; Park, Jae Hyung; Cho, Yong Woo; Chung, Hesson; Jeong, Seo Young; Lee, Eunhee Bae; Kwon, Ick Chan
CORPORATE SOURCE: Biomedical Research Center, Korea Institute of Science and Technology, Seoul, 136-791, S. Korea
SOURCE: Journal of Controlled Release (2003), 91(3), 365-374
CODEN: JCREEC; ISSN: 0168-3659
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Damaged articular cartilage, caused by traumatic injury or degenerative diseases, has a limited regenerative capacity and frequently leads to the onset of osteoarthritis. As a promising strategy for the successful regeneration of long-lasting hyaline cartilage, tissue engineering has received increasing recognition. In this study, the authors attempted to design a novel type of porous chitosan scaffold, containing transforming growth factor-β1 (TGF-β1), to enhance chondrogenesis. First, to achieve a sustained release of TGF-β1, chitosan microspheres loaded with TGF-β1 (MS-TGFs) were prepared by the emulsion method, in the presence of tripolyphosphate; with an identical manner, microspheres loaded with BSA, a model protein, were also prepared Both microspheres containing TGF-β1and BSA had spherical shapes with a size ranging from 0.2 to 1.5 μm. From the release expts., it was found that both proteins were slowly released from the microspheres over 5 days in a PBS solution (pH 7.4), in which the release rate of TGF-β1 was much lower than that of BSA. Second, MS-TGFs were seeded onto the porous chitosan scaffold, prepared by the freeze-drying method, to observe the effect on the proliferation and differentiation of chondrocytes. It was obviously demonstrated from in vitro tests that, compared to the scaffold without MS-TGF, the scaffold containing MS-TGF significantly augments the cell proliferation and production of extracellular matrix, indicating the role of TGF-β1 released from the microspheres. These results suggest that the chitosan scaffold containing MS-TGF possesses a promising potential as an implant to treat cartilage defects.

CT Cartilage
CT Prosthetic materials and Prosthetics
CT Drug delivery systems
CT Cartilage formation
CT Cell differentiation

CT Cell morphology
CT Cell proliferation
CT Chondrocyte
CT Dissolution
CT Extracellular matrix
CT Particle shape
CT Particle size
CT Particle size distribution
CT Pore size
CT Porosity
CT Medical goods
CT Albumins, uses
CT **Transforming growth factors**
REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L59 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:231930 CAPLUS Full-text
DOCUMENT NUMBER: 141:195159
TITLE: Effects of the controlled-released TGF-β1 from **chitosan** microspheres on chondrocytes cultured in a collagen/**chitosan**/glycosaminoglycan scaffold
AUTHOR(S): Lee, Jong Eun; Kim, Ko Eun; Kwon, Ick Chan; Ahn, Hyun Jeong; Lee, Sang-Hoon; Cho, Hyunchul; Kim, Hee Joong; Seong, Sang Chul; Lee, Myung Chul
CORPORATE SOURCE: Orthopedic Surgery, Seoul National University College of Medicine, Seoul, 110-744, S. Korea
SOURCE: Biomaterials (2004), 25(18), 4163-4173
CODEN: BIMADU; ISSN: 0142-9612
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The objectives of this study were (1) to develop a three-dimensional collagen/chitosan/glycosaminoglycan (GAG) scaffold in combination with transforming growth factor-beta1 (TGF-β1)-loaded chitosan microspheres, and (2) to evaluate the effect of released TGF-β1 on the chondrogenic potential of rabbit chondrocytes in such scaffolds. TGF-β1 was loaded into chitosan microspheres using an emulsion-crosslinking method. The controlled release of TGF-β1, as measured by ELISA, was monitored for 7 days. The porous scaffolds containing collagen and chitosan were fabricated by using a freeze drying technique and crosslinked using 1-ethyl-3-(3-dimethyl aminopropyl)carbodiimide (EDC) in the presence of chondroitin sulfate (CS), as a GAG component. The TGF-β1 microspheres were encapsulated into the scaffold at a concentration of 10 ng TGF-β1/scaffold and then chondrocytes were seeded in the scaffold and incubated in vitro for 3 wk. Both proliferation rate and glycosaminoglycan (GAG) production were significantly higher in the TGF-β1 microsphere-incorporated scaffolds than in the control scaffolds without microspheres. Extracellular matrix staining by Safranin O and immunohistochem. for type II collagen were elevated in the scaffold with TGF-β1 microspheres. These results suggest that TGF-β1 microspheres when incorporated into a scaffold have the potential to enhance cartilage formation.
CT Cartilage formation
CT Cell proliferation
CT Chondrocyte
CT Compressive strength
CT Dissolution
CT Freeze drying

CT Particle size
CT Particle size distribution
CT Pore size
CT DNA
CT Castor oil
CT Glycosaminoglycans, biological studies
CT Drug delivery systems
CT Collagens, biological studies
CT **Transforming growth factors**
REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L59 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:951368 CAPLUS Full-text
DOCUMENT NUMBER: 142:246238
TITLE: Composite for facilitating osteogenesis and osteosclerosis
INVENTOR(S): Cho, Byeong Chae; Kim, In San
PATENT ASSIGNEE(S): Regen Biotech, Inc., S. Korea
SOURCE: Repub. Korean Kongkae Taeho Kongbo, No pp. given
CODEN: KRXXA7
DOCUMENT TYPE: Patent
LANGUAGE: Korean
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
KR 2002076686	A	20021011	KR 2001-16743	20010330
PRIORITY APPLN. INFO.:			KR 2001-16743	20010330

AB An osteogenesis and osteosclerosis facilitating composite is provided to lead neo-bony osteogenesis and normal bone structure, and to prevent the growth of undesirable connective tissue. The osteogenesis and osteosclerosis facilitating composite consists of tripolyphosphate and water soluble chitosan. A ratio of the tripolyphosphate to the water soluble chitosan is 20:80 to 80:20 wts. per percent. Preferably, the ratio is 50:50 weight per percent. Addnl., an osteogenesis and osteosclerosis accelerant is added to the composite. The accelerant is selected from a group consisting of **beta ig-h3**, bone morphogenic protein, TGF-beta, FGF, IGF-1 and PDGF.
CT Bone
CT Bone formation
CT Bone morphogenetic proteins
CT Platelet-derived growth factors
CT Prosthetic materials and Prosthetics
CT Bone, disease
CT **Transforming growth factors**
CT Cell adhesion molecules

L59 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:532546 CAPLUS Full-text
DOCUMENT NUMBER: 136:177904
TITLE: Effect of **chitosan**, β **ig-h3** and human bone morphogenic protein-4 on early bony consolidation in distraction osteogenesis of the canine mandible
AUTHOR(S): Kim, Hwan; Han, Sang Hee; Lee, Ju Myung; Shin, Dong Pill; Park, Jae Woo; Cho, Byung Chae; Baik, Bong Soo; Kim, In San; Jang, Kwang Ho; Jang, In Ho
CORPORATE SOURCE: Department of Plastic and Reconstructive Surgery, College of Medicine, Kyungpook National University,

Taegu, S. Korea
SOURCE: Taehan Songhyong Oekwa Hakhoechi (2001), 28(3), 223-232
CODEN: TSOHAK; ISSN: 1015-6402
PUBLISHER: Korean Society of Plastic and Reconstructive Surgeons
DOCUMENT TYPE: Journal
LANGUAGE: Korean

AB Sixteen dogs were used to study the effect of bone morphogenic protein (BMP-4), β **ig-h3** and chitosan during the early bony consolidation stage in the distracted zones of mandibles. The lateral surface of the mandibular body was exposed in the subperiosteal plane and vertical osteotomy was carried out on the mandibular body. An external distraction device was applied to the mandibular body about 1 cm apart from the osteotomy line. Mandibular distraction was started 5 days after the mandibular osteotomy at a rate of 2 mm per day for a total of 10 mm distraction for 5 days. The exptl. group was divided into 4 groups: control group, BMP-4 group, **.beta . ig-h3** group and chitosan group depending on the injected material into the distracted area. Four dogs were allocated to each group. On the day of completion of distraction, 0.5 mL of BMP-4, 0.5 mL of β **ig-h3**, 0.5 mL of 5% chitosan solution was injected resp. into the distracted area of each group with the same amount of tripolyphosphate in dual syringe for solidification of the injected solution In the control group, 1 mL of tripolyphosphate was injected into the distracted area. After injection of the study materials, the distraction device was left in place for 4 or 7 wk to allow bony consolidation. Radiographs were taken weekly. Two dogs in each group, a total of eight dogs, were sacrificed in 4 wk, and another eight dogs in 7 wk after completion of distraction. Bone specimens of the distracted mandibles were taken for histol. examination The mineral d. of the distracted bone was measured during the radiol. procedures and analyzed by the computer. In the radiographs of the distracted areas of the mandibles, the control group has shown a mostly radiolucent zone but the other groups have shown the radiodense zones with various width of central radiolucent zones. The central radiolucent zone became narrower in time and vertical thickness of the radiodense zone was about twice thicker in 7 wk than that of 4 wk after finishing bone distraction. BMP-4 group showed the thickest radiodense zone and the chitosan group shows the thinnest radiodense zone. The mineral d. of bone was highest in the BMP-4 group and lowest in the control group. In the histol. findings of the distracted areas of mandibles, the control group showed whole fibrous tissue but the other groups showed new woven bones with central narrow fibrous interzone. The degree of new bone formation was most remarkable in the BMP-4 group and was least remarkable in the chitosan group. In conclusion, there was an active formation of a new bone in the distracted area of the mandible by injection of BMP-4, β **ig- h3** and chitosan. The new bone formation was most remarkable in the BMP-4 group followed by β **ig-h3**, chitosan and control group. These findings suggest that BMP-4 is clin. worth using for early bony consolidation in the distraction osteogenesis.

CT Bone formation
CT Bone morphogenetic protein 4
CT Gene, animal

L59 ANSWER 6 OF 6 EMBASE

ACCESSION NUMBER: 2002168133 EMBASE Full-text
TITLE: Role of BMP, **.beta.ig-h3**, and **chitosan** in early bony consolidation in distraction osteogenesis in a dog model.
AUTHOR: Kim I.-S.; Park J.W.; Kwon I.C.; Baik B.S.; Cho B.C.
CORPORATE SOURCE: Dr. B.C. Cho, Department of Reconstructive Surgery, School of Medicine, Kyungpook National University, Samduk 2 ga 50,

Taegu 700-721, Korea, Republic of. bccho@knu.ac.kr

SOURCE: Plastic and Reconstructive Surgery, (2002) Vol. 109, No. 6, pp. 1966-1977.
Refs: 56
ISSN: 0032-1052 CODEN: PRSUAS
May 2002
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 009 Surgery
027 Biophysics, Bioengineering and Medical Instrumentation
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 6 Jun 2002
Last Updated on STN: 6 Jun 2002

AB The purpose of this investigation was to study the effect of bone morphogenetic protein (BMP), transforming growth factor **beta- induced gene h3 (.beta.ig-h3)**, and **chitosan** on early bony consolidation in distraction osteogenesis in a dog model. Sixteen dogs were used for this study. The lateral surface of the mandibular body was exposed in the subperiosteal plane and the vertical osteotomy on the mandibular body was extended downward. An external distraction device was applied to the mandibular body, and the mandibular distraction was started 5 days after the operation at a rate of 2 mm/day up to a 10-mm distraction after 5 days. The experimental group was then divided into a control group, a BMP group, a **.beta.ig-h3** group, and a **chitosan** group, depending on the type of implantation material used in the distracted area. On the same day after completing the distraction, BMP, **.beta.ig-h3**, or **chitosan** was implanted into the distracted area. No material was implanted into the distracted area in the control group. After implanting the materials, the distraction device was left in place for 7 weeks to allow for bony consolidation. Four dogs were allocated to each group. Two dogs in each group, a total of eight dogs, were killed 4 weeks after completing the distraction and the other eight dogs were killed after 7 weeks. Serial radiographs were obtained every week after completing the distraction. New bone was generated in the distracted zone in all groups. In the BMP group, the formation of active woven bone was observed throughout the distracted zone, and the new bone appeared to be nearly normal cortical bone 7 weeks after implantation. In the **β ig-h3** and **chitosan** groups, the development of new bone was observed in the distracted zone after 7 weeks; however, the amount was less than that in the BMP group. In the control group, the new bone was observed at the edges of the distracted zone. These findings suggest that BMP seems to be very effective in early bony consolidation in distraction osteogenesis.

CT Medical Descriptors:
*distraction osteogenesis
*bone development
dog
mandible
osteotomy
surgical technique
surgical anatomy
implantation
bone radiography
ossification
tissue injury
nonhuman
animal experiment
animal model
controlled study

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      animal tissue
      animal cell
      article
      priority journal
      Drug Descriptors:
      *bone morphogenetic protein
      *transforming growth factor beta
        *chitosan
      *transforming growth factor beta1


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